

PCB-IMPACTED SOILS EXCAVATION WORK PLAN

**AMERICAN CHEMICAL SERVICE
NPL SITE
GRIFFITH, INDIANA**

Montgomery Watson File No. 1252042

Prepared For:

ACS RD/RA Executive Committee

Prepared By:

**Montgomery Watson
2100 Corporate Drive
Addison, Illinois 60101**

April 1999



MONTGOMERY WATSON

PCB-IMPACTED SOILS EXCAVATION WORK PLAN

**AMERICAN CHEMICAL SERVICE
NPL SITE
GRIFFITH, INDIANA**

Prepared For:

ACS RD/RA Executive Committee

Prepared by:

Tom Blair, P.E.
Project Engineer

Date

Approved by:

Peter J. Vagt, Ph.D., CPG
Project Manager

Date

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION.....	1
1.1 Site Background	1
1.2 Scope of Work.....	2
1.3 Project Organization	3
2.0 SITE OPERATIONS	4
2.1 Site Characterization	4
2.2 Mobilization	4
2.3 Set-Up	5
2.4 Sediment Management.....	5
2.5 Contingency Procedures.....	6
2.6 Disposal.....	6
2.7 Site Restoration	6
2.8 Decontamination and Demobilization.....	7
2.9 Field Documentation	7
3.0 TRANSPORTATION AND DISPOSAL	8
3.1 Selection of Disposal Facilities	8
3.2 Disposal Arrangements	9
3.3 Transportation	9
4.0 HEALTH AND SAFETY	10
4.1 Initial Site Entry	10
4.2 Safety Personnel	10
4.3 Task-Specific Health and Safety Plan	10
5.0 SCHEDULE.....	15
6.0 REFERENCES.....	16

LIST OF FIGURES

Figure 1	Wetland Sediment PCB Isoconcentration Map (0-0.5 ft Interval)
Figure 2	Wetland Sediment PCB Isoconcentration Map (0.5-1 ft Interval)
Figure 3	Wetland Sediment PCB Isoconcentration Map (1-1.5 ft Interval)

1.0 INTRODUCTION

This work plan has been developed at the request of the U.S. Environmental Protection Agency to guide the excavation of PCB-impacted soils in the wetlands area in the west portion of the American Chemical Service, Inc. (ACS) NPL site (Site) in Griffith, Indiana. This plan also discusses the disposal of the soils and the restoration of the wetlands. A more detailed Wetland Characterization Report and Wetland Restoration Work Plan will be submitted at a later date.

1.1 SITE BACKGROUND

The Site includes an active chemical manufacturing plant located at 420 South Colfax Avenue in Griffith, Indiana. The plant began operations in 1955, with reclamation of spent solvent waste. The site accepted solvent mixtures containing alcohols, ketones, esters, chlorinateds, aromatics, aliphatics, and glycols which contained various residues. Other processes that have operated at the site since its inception include specialty chemical manufacturing in small batches, burning of still bottoms and non-reclaimable materials in incinerators (1965-1970), epoxidation and bromination operations, and storage and blending of waste streams for ACS' secondary fuel program.

The Phase I Wetlands Investigation was conducted in 1996⁽¹⁾. Sampling results from this investigation indicated that PCBs had migrated into the wetlands area west of the ACS plant. Even though PCBs are not currently handled or stored on site, it appears that in the past, surface water runoff from the plant flowed along an on-site channel that discharged to the wetlands and this water may have transported PCBs or sediments containing PCBs. An aerial photograph from 1980 indicated that there was a channel that ran from near the ACS plant facility fence west into the wetlands to its intersection with a north-south drainage ditch in the wetland. The channel was identified in the field during the Phase I sampling at several locations. PCBs were detected in 19 of the 22 sediment samples collected in the Phase I investigation. Except for three locations, the total PCB concentrations ranged from less than 1 mg/kg to approximately 6 mg/kg⁽¹⁾.

The Phase II Wetland Investigation was conducted on November 18 through 21, 1996, to better define the extent of PCB contaminated sediments within and along the drainage channel⁽²⁾. The results of the Phase I and Phase II Investigations indicated that the PCBs are concentrated along a narrow zone, parallel to the drainage pathway west of the ACS facility. Figures 1 through 3 show the total PCB concentration contours for three depth ranges (0-0.5 ft, 0.5-1 ft, and 1-1.5 ft). The PCB contamination appears to be limited to the upper foot of sediment in this area. The total volume of the PCB-impacted soils is estimated to be approximately 2,100 cubic yards, based on the areal extent and vertical extent shown on the PCB isoconcentration maps developed from the Phase II Wetland Investigation. The majority of this PCB contamination will be excavated from the top one foot of sediment, with a small area in the western portion of the excavation to 1.5-feet deep, as shown in Figure 3.

1.2 SCOPE OF WORK

The scope of work for the successful performance of the project involves execution of the following tasks:

- Prepare the Wetlands Excavation Work Plan and revise as necessary to obtain Agency approval.
- Prepare a Wetland Characterization Report and a Wetland Restoration Plan for the work (to be submitted following approval of this Work Plan).
- Obtain a U.S. Army Corps of Engineers Section 404 permit equivalency for construction in a wetland
- Relocate previous sampling location from the coordinates established in the 1996 Phase II Wetland Investigation.
- Mobilize qualified personnel, equipment, and materials.
- Set-up site, including the establishment of an exclusion zone and decontamination area.
- Survey and stake excavation areas. There will be two excavation areas: an area with total PCB concentrations greater than 50 ppm and an area with total PCB concentrations greater than 1 ppm and less than 50 ppm.
- Clear the areas of vegetation.
- Excavate the soils with total PCB concentrations greater than 50 ppm and transport these soils to a TSCA landfill for disposal.
- Excavate the remaining soils with total PCB concentrations greater than 1 ppm and less than 50 ppm, and transport these soils to the Off-Site Containment Area to be capped.
- Survey the excavation area to determine the volume and areal extent of soils that were removed.
- In accordance with U.S. EPA PCB spill guidance entitled *Field Manual for Grid Sampling of PCB Spill site to Verify Cleanup* dated May 1986, approximately nineteen (19) post-excavation samples will be taken and analyzed.
- Regrade the disturbed wetlands area with appropriate soils.
- Restore the wetlands area with seeds and seedlings of native wetlands species.

- Decontaminate and demobilize the equipment.
- Demobilize personnel.

A detailed description of each of these major work tasks, plus site health and safety procedures, project organization, and other tasks required to successfully execute the wetlands excavation are presented in the following sections.

1.3 PROJECT ORGANIZATION

Montgomery Watson's project team will provide project operations and technical support.

A wetlands specialist, with experience in wetlands characterization and restoration, will be retained to develop an inventory of existing soils and native wetlands species and a plan to regrade and replant the disturbed areas.

Additional organizational members include the subcontractors required to complete the excavation and restoration, which will be determined following approval of this Work Plan.

2.0 SITE OPERATIONS

2.1 SITE CHARACTERIZATION

Throughout the excavation process, Montgomery Watson will coordinate with specialists from U.S. EPA and other agencies as identified by U.S. EPA. Prior to the excavation, a wetlands restoration specialist will perform a site visit to delineate and characterize the wetlands. The specialist will determine the type of soil, native wetlands species, and other existing wetlands characteristics. IDEM may order an investigation of the historical and archaeological properties of the site. In this event, an appropriate subcontractor will be contacted and will prepare the necessary reports for submittal to the Indiana Historical Preservation Agency. The Natural Resources Trustees and the U.S. Army Corps of Engineers will be contacted and a Section 404 permit equivalency for construction in a wetland will be submitted.

2.2 MOBILIZATION

The excavation contractor will initially mobilize personnel, including the following, to the Site to conduct the wetlands excavation.

- Site Supervisor
- Equipment Operator (Subcontractor)
- Surveyor (Subcontractor)

The Site Supervisor and the Health and Safety Officer will be regularly on site. A regional Health and Safety Manager will visit the site at the time of mobilization, and will serve on an as-needed basis throughout the excavation process.

The following equipment may be used to conduct the removal activities.

- Excavator
- Dump truck
- Bulldozer
- Sampling Supplies and Containers
- Health and Safety Equipment

If needed, additional equipment will be mobilized to the Site for grading and restoration purposes.

2.3 SET-UP

Once mobilization is complete, the Excavator Contractor and its subcontractor(s) will set-up equipment and materials to support the removal activities. High visibility plastic fencing will be installed to delineate the exclusion and contamination reduction zones. The support zones will be established adjacent to the work zones. In order to keep trespassers and other unauthorized personnel away from the work area, the site will be temporarily fenced with safety fence during excavation work and will be manned during working hours.

2.4 SEDIMENT MANAGEMENT

The wetlands excavation project will be executed according to the procedures described below or as necessary according to field conditions.

An exclusion zone will be established around the excavation site. Personnel inside the exclusion zone will be in level "D" modified personnel protective equipment (PPE). Additional information regarding health and safety procedures during the excavation project is presented in Section 4.0.

The surveyors will stake two excavation areas, as denoted by different color stakes, with an off-set of 10 ft: an area with total PCB concentrations greater than 50 ppm and an area with total PCB concentrations greater than 1 ppm and less than 50 ppm. The analytical results and coordinates of the previous samples from the Phase II Investigation will define the excavation areas. See Figures 1 through 3.

After the areas have been staked, the areas will be cleared of vegetation. Trees that can easily be cut down will be removed. Ground vegetation, such as weeds and brush, which can not be easily separated from the sediment will be disposed in the same way as the sediment, described below. If the excavation takes place in the winter, the ground may be frozen. It may be necessary for the excavator to break the frozen ground before the excavation can take place. Prior to PCB-impacted soil excavation activities, a sump pit will be excavated upstream of the excavation, to prevent surface water from entering the excavation. This surface water will be pumped from the sump, for discharge downstream of the excavation. The excavated area will be graded so that stormwater within the excavation can drain into a manageable area. If stormwater is collected within the excavation during construction, this stormwater will be pumped through a filter to the groundwater treatment plant.

The sediments characterized as having PCB concentrations greater than 50 ppm will be excavated and disposed first and then the remaining sediment characterized as having greater than 1 ppm will be excavated and disposed. After the sediment has been excavated, it will be placed in an appropriately lined dump truck that will be used for transporting of the sediment. If the sediment is deemed too wet to be disposed immediately, the sediment will be placed adjacent to the Fire Pond and allowed to drain. The drained water will be

eventually collected by the Barrier Wall Extraction System (BWES) and conveyed to the groundwater treatment plant.

After the excavation is complete, the area will be resurveyed. Elevations will be surveyed on a grid pattern with spacing of 25 feet in order to verify that the proper volume of sediment was removed.

The personnel, equipment, and procedures for the excavation will assure that site management of the sediment occurs safely and efficiently.

2.5 CONTINGENCY PROCEDURES

In the event that sediment is spilled during excavation or during transport, the spilled sediment and the underlying sediment will be removed and disposed. In the event that water from the excavated sediments is released, the area will be contained with berms or booms, and the water will be collected for treatment in the groundwater treatment plant. Silt check(s) will be placed downstream of the excavated area(s) to manage run-off during the sediment removal and replacement stages of work, to prevent silt and sediment from migrating downstream of the excavation area.

2.6 DISPOSAL

The sediments characterized as having PCB concentrations greater than 50 ppm and associated vegetation will be sent for disposal to a TSCA landfill. Prior to the transporting of the sediment, any sampling that the landfill requires and all the necessary manifests will be completed.

The sediments characterized as having PCB concentrations greater than 1 ppm and less than 50 ppm and associated vegetation will be relocated to either the Fire Pond or the Off-Site Containment Area. The sediments and associated vegetation will be temporarily fenced to prevent dermal contact by unauthorized personnel until 10-inches of soil cover is placed over the sediments, as required by 40 CFR 761-61(7).

2.7 SITE RESTORATION

A wetlands specialist will be retained prior to beginning the removal to develop a wetlands restoration plan. The plan will discuss the quality of the impacted wetlands as well as the restoration implementation and will include the regrading, replanting, and monitoring of the wetlands. A detailed Wetlands Restoration Work Plan will be prepared based on the initial survey findings and recommendations and will be submitted to the U.S. EPA for approval.

Upon U.S. EPA approval of the Wetlands Restoration Work Plan, the disturbed wetlands areas will be regraded/restored with appropriate wetlands soils to match the existing grade. The area will then be reseeded with seeds and seedlings of typical, native wetlands species or may be restored as a shallow open-water wetlands area. Other areas that are disturbed will also be regraded using standard accepted practices to the approximate original contour of the area.

2.8 DECONTAMINATION AND DEMOBILIZATION

Decontamination of heavy equipment will be performed in designated areas and will involve a high-pressure cleaning of all equipment that will come in direct contact with PCB-impacted soils prior to demobilization from the excavation area. A temporary decontamination pad will be constructed for containing decontamination residuals and will be constructed so the washwater will drain towards a sump. Water will then be pumped to the groundwater treatment plant for treatment and discharge. Additional scrubbing may be required to remove encrusted materials. Equipment or portions of equipment which do not come in direct contact with PCB-impacted soils will not need to be decontaminated prior to demobilization. The decontamination area will be dismantled and the decontamination soils will be disposed in the Off-Site Containment Area.

2.9 FIELD DOCUMENTATION

The contractors will document activities and observations made in the field. A Completion Report will be developed summarizing the initial survey, wetlands characterization, excavation activities, PCB disposal, and wetlands restoration activities.

3.0 TRANSPORTATION AND DISPOSAL

Only those transporters and disposal facilities that are fully licensed and/or permitted will be used. Upon selection, Montgomery Watson will submit the names to U.S. EPA for review and approval. If necessary, sediments will be properly staged and stored on Site pending analytical data and acceptance approval. All applicable federal, state, and local requirements will be followed during transport and disposal of the PCB sediments.

Following approval of the disposal facilities, waste profile sheets will be prepared for generator review and signature, then forwarded to the designated disposal facility for acceptance approval.

3.1 SELECTION OF DISPOSAL FACILITIES

Disposal facilities will be selected on the basis of several factors:

- TSCA compliance
- TSDF capacity to handle incoming waste
 - Volume
 - Turnaround time for approval to ship
 - Regulatory status
- Solicitation of bids
- Verification of permits and insurance (at time of event)

Potential TSCA-approved landfills to be used for this project are listed below:

Environmental Quality Company
Belleville, MI
(800) 592-5489

Waste Management
Model City, NY
(770) 805-4130 (Atlanta)

Laidlaw/Safety Kleen
Clive, UT
(770) 934-0902 (Atlanta)

3.2 DISPOSAL ARRANGEMENTS

The Project Supervisor will be responsible for ensuring all necessary paperwork required for approval of sediment disposal at the selected disposal facility. This paperwork includes, but is not limited to, waste profiles, analytical data, and generator certifications. These documents will be forwarded to the ACS RD/RA Executive Committee for review and signature as generator.

The applicable agencies and the receiving state will be notified 14 days prior to shipment.

3.3 TRANSPORTATION

Haulers solicited on this project will have the proper waste permits for each waste they are transporting. Necessary shipping papers for the project will be completed and vehicles and containers will be placarded and labeled correctly according to DOT regulations. These shall include manifests, LDR certification, and bills of lading. Sample copies of each will be provided to the ACS RD/RA Executive Committee at least forty-eight hours prior to the first shipment of any waste stream.

Final disposal facilities will be selected based on acceptability to the ACS PRP Committee and applicable Agencies will be notified 14 days before shipment.

4.0 HEALTH AND SAFETY

Health and Safety will include on-site health and safety supervision of work activities by the Site Safety Officer (SSO).

4.1 INITIAL SITE ENTRY

Initial Site entry will include workers donning Level "D" modified PPE, set-up of a decontamination area for PPE doffing following site entry and a site characterization and hazard evaluation to identify site hazards and their potential impact on worker and public safety.

Level "D" modified equipment includes: Tyvek or cotton coveralls with hood, latex overboots, 2 pair of latex or vinyl sample gloves, steel-toed boots, hard hat and safety glasses. Where contaminated liquids can be encountered, a Saranex-coated Tyvek suit and face shield will be used.

4.2 SAFETY PERSONNEL

Safety personnel will be available on site and by telephone to support initial site activities and will provide additional on-site/off-site support throughout site activities.

Project Safety Officer

The Project Safety Officer (PSO) will be responsible for overseeing development of the Health and Safety Program (HASP) and will ensure that the HASP complies with all federal, state, and local health and safety requirements. The PSO provides technical and administrative support for the Montgomery Watson HASP. If necessary, the PSO can modify specific aspects of the HASP to adjust for on-site changes that affect safety. The PSO will coordinate with the SSO on all modifications to the HASP and will be available for consultation when required. The PSO will not necessarily be on site during activities but may make periodic site visits to determine compliance.

Site Safety Officer

The SSO's primary responsibilities during site activities will be monitoring, including personal and environmental monitoring, conducting safety orientation, and reviewing site safety practices and documentation.

4.3 TASK-SPECIFIC HEALTH AND SAFETY PLAN

The ACS NPL site has an existing Site Safety Plan (SSP)⁽³⁾ that documents the policies and procedures that protect workers and the public from potential hazards posed by work at the

site. The SSP will be amended to include this section (Section 4) of the PCB-Impacted Soils Excavation Plan to incorporate the specific task of excavating PCB-impacted soils in the wetlands area. Selected subcontractors will provide their own health and safety plans which will meet the requirements of Montgomery Watson's SSP.

The SSP procedures and guidelines are based upon the best available information at the time of the plan's preparation. Specific requirements will be revised as new information is received or when site conditions change.

All personnel entering the site shall read and sign the safety plan. It does not supersede any Federal, OSHA, state, or local regulations, but is an addition to them. In the event of a conflict between this plan and a regulation, the more stringent of the two will be enforced.

The SSP complies with all the requirements of 29 CFR 1910.120 regarding the conduct of hazardous waste operations, worker training, and medical surveillance.

Hazard Analysis

Prior to the start of each task, a Hazard Analysis (HA) will be prepared by Montgomery Watson. This document will break down the task into steps and identify the potential hazards of each step and the precautions to be taken to ensure the safety of workers involved in that task. The HAs will be field checked by the PSO or SSO on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew and training will be documented. The HAs are included in the following table.

HAZARD ANALYSES	
POTENTIAL HAZARDS	HAZARD CONTROL MEASURES
SITE PREPARATION – EQUIPMENT/FACILITY SET-UP	
Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas of equipment, tools, vegetation, excavated material and debris • Mark, identify, or barricade other obstructions
Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
Sharp Objects	<ul style="list-style-type: none"> • Wear cut-resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use

HAZARD ANALYSES	
POTENTIAL HAZARDS	HAZARD CONTROL MEASURES
SITE PREPARATION – EQUIPMENT/FACILITY SET-UP (continued)	
High Noise Levels	<ul style="list-style-type: none"> • Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)
High/Low Ambient Temperature	<ul style="list-style-type: none"> • Monitor for Heat/Cold stress in accordance with Health and Safety Procedures Manual
DEBRIS STAGING AND REMOVAL	
Struck By/Against Heavy Equipment	<ul style="list-style-type: none"> • Use reflective warning vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals
Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris • Mark, identify, or barricade other obstructions
Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
Sharp Objects	<ul style="list-style-type: none"> • Wear cut-resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use
Contact Dermatitis	<ul style="list-style-type: none"> • Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants • Identify and review poisonous plants with workers
High Noise Levels	<ul style="list-style-type: none"> • Use hearing protection when exposed to excessive noise levels (greater than 35 dBA over an 8-hour work period)
High/Low Ambient Temperature	<ul style="list-style-type: none"> • Monitor for Heat/Cold stress in accordance with Health and Safety Procedures Manual

HAZARD ANALYSES	
POTENTIAL HAZARDS	HAZARD CONTROL MEASURES
SEDIMENT AND VEGETATION HANDLING	
Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
Caught In/Between Moving Parts	<ul style="list-style-type: none"> • Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Provide and use proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and locked-out machinery before maintenance or service
Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris • Mark, identify, or barricade other obstructions
Sharp Objects	<ul style="list-style-type: none"> • Wear cut-resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use
Struck by, Against Heavy Equipment, Protruding Objects	<ul style="list-style-type: none"> • Use reflective warning vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals
Ingestion and Contact with Hazardous Substances	<ul style="list-style-type: none"> • Provide workers proper skin, eye and respiratory protection based on the exposure hazards present (See Section 4.0) • Review hazardous properties of site contaminants with workers before operations begin
High/Low Ambient Temperature	<ul style="list-style-type: none"> • Monitor for Heat/Cold stress in accordance with Health and Safety Procedures Manual

HAZARD ANALYSES	
POTENTIAL HAZARDS	HAZARD CONTROL MEASURES
TRANSFER	
Ingestion and Contact with Hazardous Substances	<ul style="list-style-type: none"> • Provide workers proper skin, eye and respiratory protection based on the exposure hazards present (See Section 4.0) • Review hazardous properties of site contaminants with workers before operations begin • Stay up-wind of bulking, chemical treatment activities
Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas, of equipment, vegetation, excavated material, tools and debris • Mark, identify, or barricade other obstructions
Struck by, Against Heavy Equipment, Protruding Objects	<ul style="list-style-type: none"> • Use reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the waste bulking areas • Restrict entry to the work area to authorized personnel • Wear hard hats, safety glasses with side shields, and steel-toe safety boots

5.0 SCHEDULE

Excavation during the dry summer months (July or August) will be feasible, with a subsequent planting in the late summer (August 15 through September 15). If excavation is conducted during the winter months, replanting of the wetlands will be done in the spring (April 15 through May 31). In general, the progression of the major tasks will proceed as follows:

- Submit Excavation and Restoration Plan to Agencies
- Agencies Review Excavation and Restoration Plan
- U.S. Army COE and Natural Resource Trustees have opportunity to comment on Plans
- Revise Excavation and Restoration Plan in Accordance with U.S. EPA Comments
- Agency Approves Excavation and Restoration Plan
- Submit Final Excavation and Restoration Plan
- Excavate sediments whose total PCB concentration is greater than 50 ppm and transport off site for disposal.
- Excavate sediments whose total PCB concentration is greater than 1 ppm and less than 50 ppm and move to the Fire Pond for disposal.
- Regrade/restore the excavation area.
- Restore the wetlands area.
- Submit Completion Report.

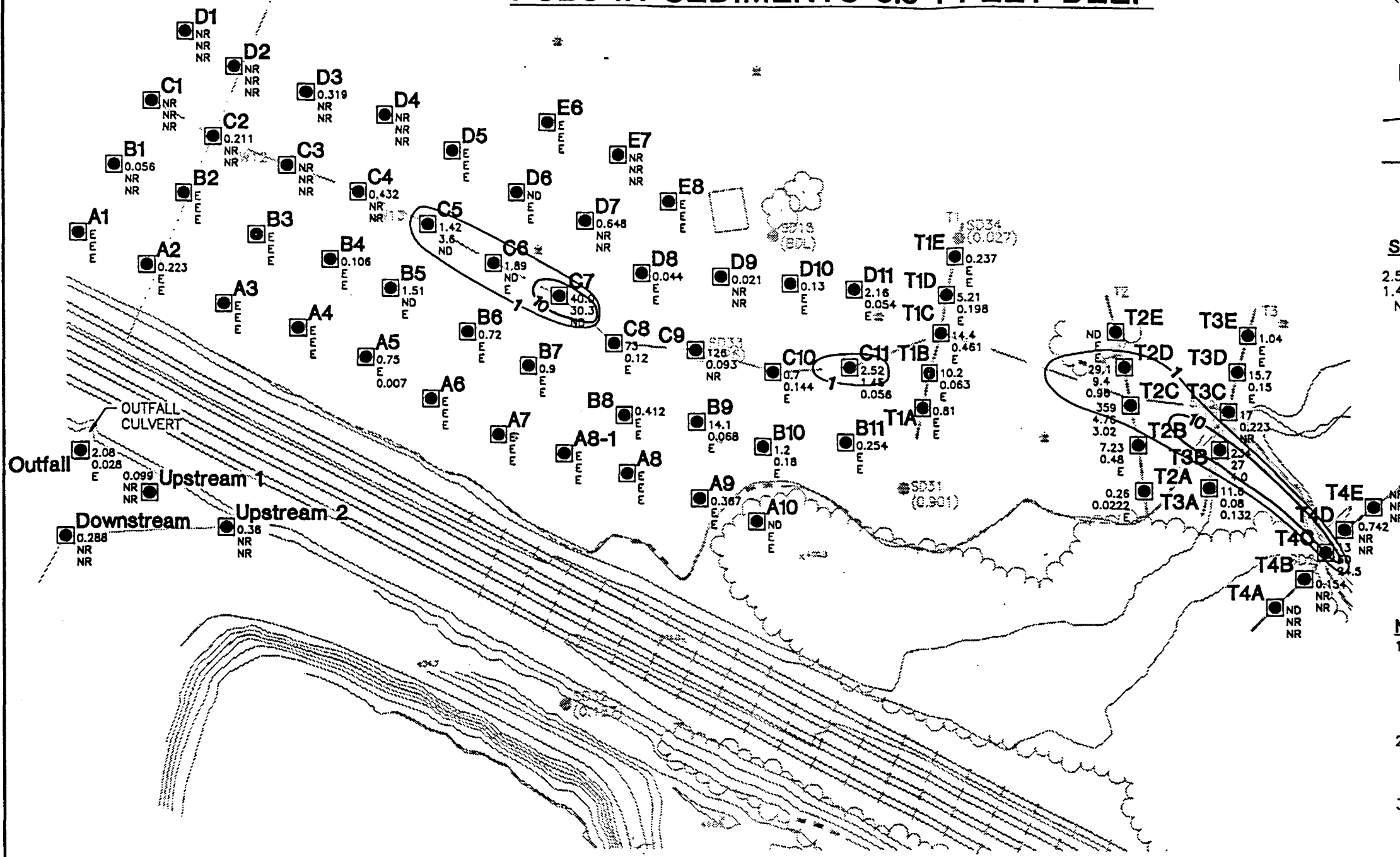
6.0 REFERENCES

1. Wetland Investigation Technical Memorandum (Montgomery Watson, July 25, 1996).
2. Technical Memorandum Phase II Wetland Investigation (Montgomery Watson, February 1997).
3. Site Safety Plan (Montgomery Watson, January 1996).

AHS/ahs/TAB/JMS/tab/jms
\\CH11_SERVER\JOBS\1252\042\28\125204228a107.doc
1252042.281201



PCBs IN SEDIMENTS 0.5-1 FEET DEEP



LEGEND

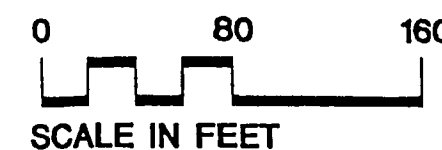
- CHANNEL COURSE
- SEDIMENT/SOIL SAMPLE LOCATION AND NUMBER, FROM PHASE I WETLAND INVESTIGATION
- TOTAL PCB CONCENTRATION, in mg/kg FROM PHASE I WETLAND INVESTIGATION
- WETLAND SAMPLE LOCATION AND NUMBER
- APPROXIMATE 1 mg/kg PCB ISOCONCENTRATION CONTOUR
- APPROXIMATE 10 mg/kg PCB ISOCONCENTRATION CONTOUR

SUMMARY OF TOTAL PCB RESULTS

- 2.52 - 0.5 ft.
- 1.45 - 1.0 ft.
- ND - 1.5 ft.
- ALL RESULTS IN mg/kg (ppm)
- ND NOT DETECTED (DETECTION LIMIT APPROXIMATELY 0.05 mg/kg)
- E EXTRACTED, NOT ANALYZED
- NR ANALYSIS NOT REQUESTED

NOTES

- BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC. CONTOUR INTERVAL IS TWO FEET.
- SEDIMENT SAMPLES COLLECTED BY MONTGOMERY WATSON FROM NOVEMBER 18 TO NOVEMBER 21, 1996.
- THE ISOCONCENTRATION CONTOURS WERE ESTIMATED MANUALLY USING THE ANALYTICAL DATA.



SCALE IN FEET

FIGURE 2

Developed By MWK
Approved By
Reference 4077.0090-B01
Revisions

Drawn By LCL
Date

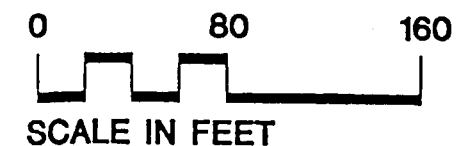
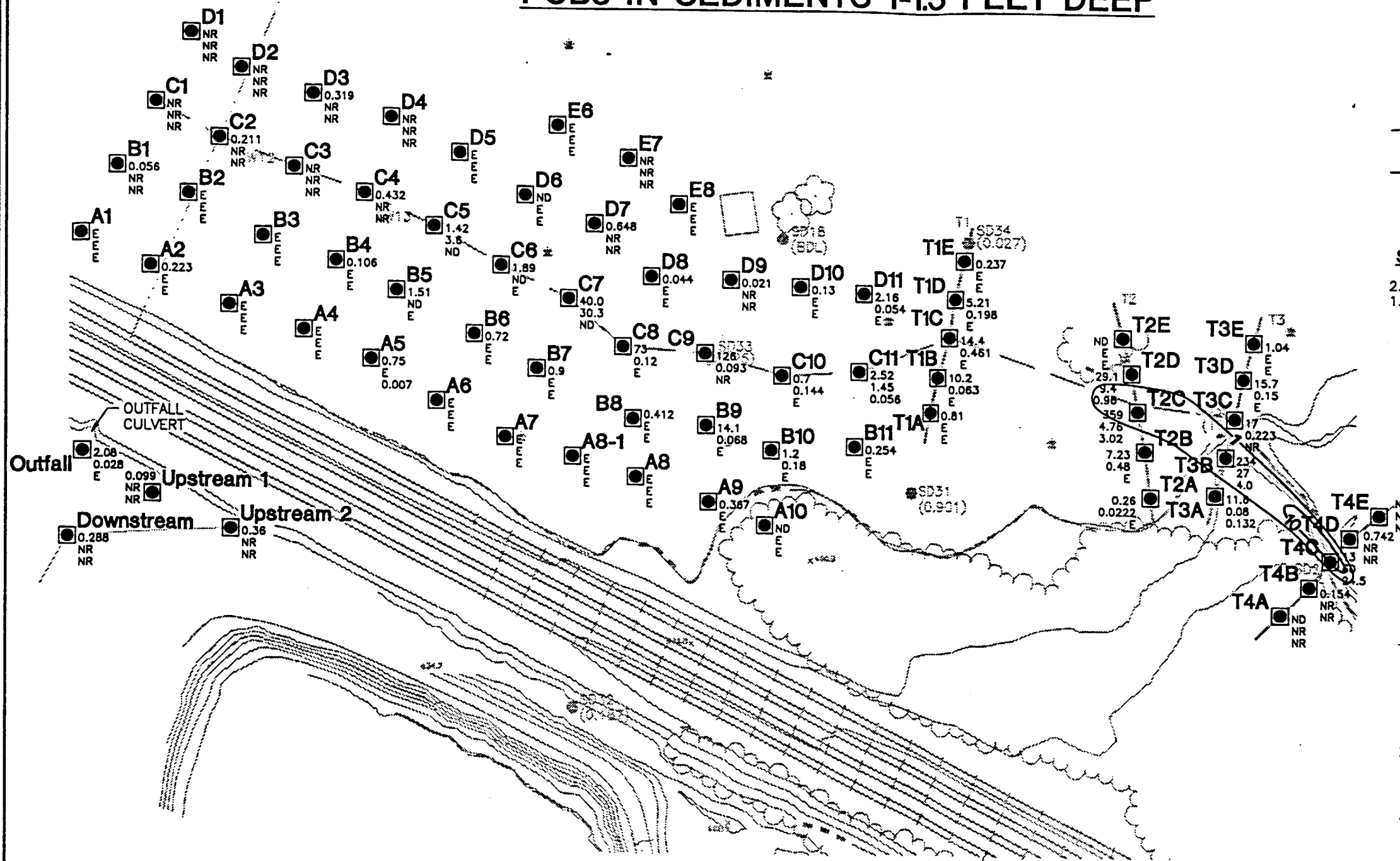
WETLAND SEDIMENT PCB ISOCONCENTRATION MAP (0.5-1 FT INTERVAL)

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
0809.0076 B3

MONTGOMERY
WATSON

PCBs IN SEDIMENTS 1-1.5 FEET DEEP



WETLAND SEDIMENT PCB ISOCONCENTRATION MAP (10-15 FT INTERVAL)

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
1252042
0809.0076 B4
MONTGOMERY WATSON

Developed By MWK
Approved By
Reference 4077.0090-B01

Drawn By LCL
Date
Revisions

FIGURE 3